

REMARKS

Reconsideration of this application, as amended, is respectfully requested. Claim 56 has been amended, inter alia, to recite "the first and second gas flow pathways controlled so as to switch the first and third conductances and the second and fourth conductances such that during the ALD process a nominally constant pressure in the reaction chamber is maintained". This amendment is supported by at least paragraphs [0046]-[0048], [0063]-[0069], and [0071] of the specification as filed. Hence, no new matter is being added. In addition, claim 62 has been amended to recite "the selectable upstream conductances and the selectable downstream conductances being under software control to switch operational modes in time-phase with one another". This amendment is supported by at least paragraphs [0046]-[0048], [0052], [0063]-[0069], and [0071] of the specification is filed.

1. Drawings

The drawings have been objected to, because, according to the Office Action, reference number 403 on page 21 of the specification (as originally filed) should be element 402 as supported by the figures. (Office Action, page 2) Paragraphs [0051] and [0052] of the specification have been amended so that both instances of reference number 403, which appear in the specification as originally filed and subsequently were deleted in amendments, have now been replaced by reference number 402, as suggested by the examiner. Hence, it is respectfully requested that the objections to the drawings be removed.

2. Claim Rejections

Claims 56-57 and 59-70 are patentable over Hamilton (U.S. Patent No. 5,993,555), hereinafter "Hamilton", in view of Sakai et al. (U.S. Patent No. 5,070,813), hereinafter "Sakai".

The Office Action admits that Hamilton does not describe the presently claimed second / downstream gas flow pathway having switchable conductances, as recited in claim 56, but seeks to combine the teachings of Sakai regarding downstream flow control with feedback to reject the claims. This conclusion is flawed. For example, even if the teachings of the references were combined in the manner suggested in the Office Action, one would still not arrive at the present invention because the resulting combination fails to teach "the first and second gas flow pathways controlled so as to switch the first and third conductances and the second and fourth conductances such that during the ALD process a nominally constant pressure in the reaction

chamber is maintained", as recited in claim 56. In other words, the cited references fail to teach such first and second gas flow pathways, pathways which when controlled by switching the first and third conductances and the second and fourth conductances, maintain the reaction chamber at a nominally constant pressure during the ALD process. This is true inasmuch as neither reference considers or is even concerned with maintaining the reaction chamber at a nominally constant pressure.

In addition, it is noted that the cited references fail to teach an atomic layer deposition apparatus in which the second pressure controller has a greater pressure than the first pressure controller. For at least the foregoing reasons, claim 56 is patentable over Hamilton in view of Sakai.

Claim 62 is patentable inasmuch as the cited references fail to teach an atomic layer deposition system with "the selectable upstream conductances and the selectable downstream conductances being under software control to switch operational modes in time-phase with one another", as recited in claim 62. While iris diaphragm mechanism 9 of Sakai (i.e., a downstream conductance) may be under the control of system controller 20 (Sakai, 4:17-21), the cited references fail to teach the upstream conductances of Hamilton being under software control. Even if, arguendo, system controller 20 of Sakai were to control the upstream conductances of Hamilton, the cited references would fail to teach system controller 20 configured to switch the operational modes of the selectable upstream and downstream conductances in time-phase with one another. Hence, claim 62 is patentable over Hamilton in view of Sakai.

Because claim 56 is patentable, claims 57 and 59-61 are patentable by virtue of their dependency on claim 56. Because claim 62 is patentable, claims 63-70 are patentable by virtue of their dependency on claim 62.

Claim 58 is patentable over Hamilton in view of Sakai, and further in view of Cox et al. (U.S. Patent No. 6,228,773), hereinafter "Cox".

Adding the teachings of Cox does not alter the above. Cox is cited for teaching external plasma sources, but this does not address the underlying deficiencies of Hamilton in view of Sakai. Hence, claim 58 is patentable over the combination of Hamilton, Sakai, and Cox.

For at least the foregoing reasons, the claims are patentable over the references cited in the Office Action. If there are any additional fees associated with this communication, please charge Deposit Account No. 19-3140.

Respectfully submitted,
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